



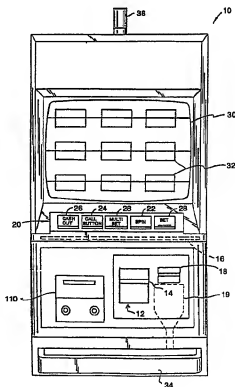
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(54) Title: GAMING APPARATUS HAVING NOTE DISPENSER AND METHOD OF OPERATING AN ELECTRONIC GAMING APPARATUS

(57) Abstract

A gaming machine, such as for example a slot machine, including a bill validator to accept paper currency to obtain game play credits, and a note dispenser for dispensing paper currency, bank notes or cash equivalent scrip as at least a portion of the payout.



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DESCRIPTION

GAMING APPARATUS HAVING NOTE DISPENSER AND METHOD OF OPERATING AN ELECTRONIC GAMING APPARATUS

Technical Field

The present invention is generally directed to the field of gaming machines commonly known as slot machines, and in particular, to such machines including a note dispenser for dispensing paper currency, bank notes or cash equivalent scrip as at least a portion of the payout.

Background Art

There are a variety of types of coin operation based slot or gaming machines in widespread use, including for example rotating reel mechanical slot machines, electronic reel machines and video poker machines.

In a basic mechanical slot machine, the player inserts a coin into a slot and pulls down on the slot machine handle or presses a button to initiate the game. For a rotating reel machine, three or more parallel, rotatable reels with an assortment of fruit, number and/or BAR symbols are then caused to spin until each reel reaches a resting position. The success or failure of the game is then determined by comparing the combination of reel symbols across an active payline with a table of winning combinations posted on the slot machine. The basic mechanical slot machine windows are frequently made large enough to show three or more adjacent symbols on each reel and thereby allow betting involving multiple rows or paylines.

There have been many improvements to the basic slot machine,

including the use of video monitors to display an imitation of the parallel, rotatable reels, rather than having actual reels themselves. In operation, these electronic slot machines simulate the rotation of a physical reel, but typically select the final symbols through use of random numbers generated by a microprocessor rather than any physical rotation of reels. In other words, the final symbols for each simulated reel in the electronic slot machine are randomly selected by the microprocessor and then displayed on the video monitor at the appropriate time and position.

Gaming machines manufactured prior to 1990 generally allowed only for the player to deposit coins or tokens to initiate a new game. Typically such slot machines accept coins or tokens of only one denomination to play a game. The accepted coins are stored in a coin hopper contained in the machine. Because these machines accepted coins of only a single denomination, a player must have that denomination of coin to play the slot machine. Casinos may employ personnel to provide change for bills to players at the slot machines so that the players do not have to leave the machines if they wish to continue playing, but do not have the correct denomination of coin. Winning game plays are determined randomly by the slot machine which pays out to the winner coins from the coin hopper. Coins dispensed from the coin hopper fall into a payout tray, where they can be collected by the player or used to initiate a new game.

Gaming machines may also have a game credit meter visible to the player so that the game credit meter is incremented in the amount corresponding to the number of coins inserted by the player or added as specified by the outcome of a winning game. Game credits can be cashed out for the corresponding number of coins, or used to initiate a subsequent

game. The play and payout functions are activated by specific operator switches on the face of the gaming machine, accessible to the player, which in turn are connected to a microprocessor based controller within the gaming machine. The controller also controls operation of the coin hopper in the gaming machine. The coin hopper thus provides a coin receiver, coin storage and coin dispenser for the gaming machine.

In approximately 1990, it became increasingly common for the manufacturers of gaming machines to incorporate currency validation devices or bill validators into the gaming machines. The bill validators allow a player to insert paper currency directly into the gaming machine. The bill validator devices are mounted either inside of the gaming machine, or externally in close proximity to the gaming machine. Upon receipt of the paper currency and verification by the bill validator, an output signal from the bill validator instructs the controller of the gaming machine to issue credits based on the denomination of the deposited currency. Credits are thus incremented onto the credit meter without a player having to physically insert coins. The use of bill validators eased new game initiation and enhanced player retention.

However, the gaming machines with bill validators generally allow for player payout or cashouts only in the form of coins. Due to the convenience afforded the player through the use of the bill validator, fewer coins are utilized to initiate new games and also thereby replenish the coin supply in the coin hopper. Thus, a constantly depleting supply of coins within the coin hopper available for payouts has been the typical result. By comparison to older machines which did not allow for acceptance of paper currency, the operators of gaming machine with bill validators have had to

manually fill the coin hopper with coins much more frequently when player payouts have emptied the coin supply in the gaming machines.

Casinos have thus had to increase the number of change persons who circulate in the gaming machine area to exchange coins or tokens for currency bills and replenish the coin hoppers. The change persons must oversee and distribute a large number of coins of varying denominations. Very often a casino will have gaming machines that accept, for example, nickels, quarters, fifty cent pieces or dollar coins as well as dollar, five dollar, twenty five dollar or one hundred dollar tokens. In addition to the inherent problems of carrying about a large amount of change on the casino floor, this method of supplying both machines and players with change complicates the accounting procedures, increases security concerns and requires more personnel.

Disclosure of Invention

In recognition of a need to alleviate the necessity of constantly resupplying the coin hopper in gaming machines equipped with bill validators, it has been conceived that such gaming machines would benefit by incorporation of a cash dispenser or "note dispenser" mounted either internally or externally to the gaming machine. The note dispenser allows for player payout in the form of paper currency, bank notes, coupons, scrip, or other "secure" paper with an associated cash value. The note dispenser is connected to the microprocessor based controller of the gaming machine. Player payout will still be controlled by the game controller, but the controller can allocate the payment to be provided in paper or coin form, or a combination of paper and coins.

To a substantial degree, equipping the gaming machine with a note

dispenser balances the quantity of coins paid out by the gaming machine to the coins inserted into the gaming machine. Incorporation of the note dispenser thus provides the beneficial result that the frequency of manual coin hopper fill operations will be substantially reduced. In addition, the design of coupons or scrip used instead of currency would preferably be unique to the casino and accepted by other bill validators in use in the casino. When such scrip is used as the payout media, the amount of actual currency held in the gaming machines may be substantially reduced.

The note dispenser is envisioned to have two primary component assemblies, herein being referred to as the currency cassette and the conveyer device. The currency cassette is simply a removable, replaceable storage device to hold, in a secure fashion, a supply of paper currency, or alternative paper medium to be dispensed. The conveyer device includes the mechanical and electrical components to allow the paper currency to be extracted from the currency cassette, transported, and dispensed by the gaming machine upon instructions by the microprocessor or alternate controller of the gaming machine. The note dispenser also incorporates the electronic circuits necessary to allow for secure communication of instruction or commands, as well as to monitor and provide status messaging to the controller of the gaming machine.

Brief Description of Drawings

Figure 1 is a front view of a gaming machine according to the present invention.

Figure 2 is a block diagram of the electronic control system provided in the gaming machine of Fig. 1.

Figure 3 is a perspective view of the note dispenser for the gaming machine of Fig. 1.

Figure 4 is a partially exploded view of the note dispenser of Fig. 3 illustrating details of the conveyer device provided in the note dispenser.

Figure 5 is a perspective view of the currency cassette of the note dispenser extracted from the conveyer device of Fig. 4.

Best Mode for Carrying Out the Invention

Referring now to Fig. 1, an exemplary form of an electronic slot or gaming machine 10 of the present invention is shown. Like slot machines generally, the gaming machine 10 collects money, initiates game play, illustrates game play and provides a payout for successful game play. The gaming machine 10 includes a bill validator 12 provided to accept money in a slot 14 in the form of bills of various denominations. Suitable bill validator for the gaming machine 10 of the present invention are shown for example by U.S. Patent Nos. 5,381,019; and 5,420,406.

The bill validator 12 pulls in paper currency, bank notes, bills or other cash equivalent secure paper as discussed herein, determines the denomination of the bills and determines whether the bills are valid. If a bill is invalid, it will be ejected by the bill validator 12 and thus returned to the player through the slot 14. If valid bills are inserted into the slot 14, the bill validator 12 will retain them and communicate their acceptance to a game controller 16 of a microprocessor within the gaming machine 10.

In addition, the gaming apparatus 10 includes a coin acceptor 18 and coin hopper 19 (shown schematically) which accepts and collects coins, count coins, validates coins and stores coins. The coin acceptor 18 is electrically

communicated to the game controller 16 to provide the controller 16 with information concerning the amount and validity of coins ascertained by the coin acceptor 18. As an alternative, the bill validator 12 can be configured to accept coded coupons, scrip or secure paper issued by the casino, to allow a player to obtain credits on the gaming machine 10 without depositing either currency or coins.

If sufficient bills, coins or credits have been inserted into the gaming machine 10, the game controller 16 will allow game play to be initiated, and the player will push a "PLAY" or "SPIN" button 22 located on the button panel 20 of the gaming machine 10 and enabled by the game controller 16. This "SPIN" button 22 serves as an initiate play switch to allow the player to initiate game play simply by pressing it. The gaming machine 10 may alternatively, or in addition, include a handle (not shown) which the player pulls to initiate play.

Additionally the button panel 20 may have a CALL button 24, CASH OUT button 26 and MULTIPLE BET button 28 to allow the player to call the attendant, cash out any accumulated winnings or make multiple bets before initiating game play. These additional buttons 24, 26, 28 are also linked to and controlled by the game controller 16 and lit during game play, particularly when their functions are available for activation by the player.

The gaming machine also features a display 30 such as a video display which may include one or more rows of display boxes 32 to indicate the results of each play. Further, the gaming machine 10 includes a payout tray 34 into which coins are dispensed upon a winning play, or when the player decides to cash out by pressing the cash out button 26. In order to stimulate game play and generate excitement, the gaming machine 10 preferably also

includes a lamp and sound generator 38 activated by the game controller 16.

The gaming machine 10 comprises a note dispenser 110 to store and dispense paper currency, bank notes or "secure" paper such as printed coupons or scrip issued by the casino. Such currency is conveniently dispensed from slot 120 of the note dispenser 110 so that it may be accepted by the player. The note dispenser 110 is connected to and controlled by electronic instructions from the game controller 16 of the gaming machine 10. When non-currency secure paper is to be dispensed, it preferably incorporates in its design and/or manufacture, characteristics to allow it to be scrutinized and validated by bill validators and other electronic currency validation, stacking and sorting devices, incorporated in gaming machines 10 and cashier stations in the casino.

Fig. 2 is a block diagram schematically showing the microprocessor based game controller 16 for the gaming machine 10 of the present invention. The microprocessor 50 at the heart of the controller 16 relies upon programming instructions stored in a code read-only memory (ROM) 52 which provides a game operating instruction memory to execute the game play sequence and appropriate video displays and activation of the button panel 20.

The microprocessor 50 is connected to control and receives signals from the bill validator 12, coin acceptor 18 and coin hopper 19 to collectively accept coins and bills deposited by a player. In addition, the microprocessor 50 is connected to control and direct signals to and from the button panel 20, a display 30 of video monitor, and the lamp and sound generator 38. Further, the microprocessor 50 is connected to the note dispenser 110 which in turn may also be connected to the bill validator 12, as shown, so that the two

components can share control functions relating to the validation proceedings for bills and notes.

When game play is initiated by pressing the SPIN button 22, the microprocessor 50 uses information stored in a video card 54 to simulate a symbol spinning motion in all of the display boxes on the video monitor 30. An imaginary reel ROM 58a is connected to the microprocessor 50 as a game data memory for storing information necessary to simulate the symbol spinning motion, including at least one list of possible symbols to be exhibited on the display 30. The video card 54 contains a symbol graphic erasable, programmable read-only memory (EPROM), a static graphics EPROM and a random access memory (RAM). The microprocessor 50, in conjunction with a separate RAM 56, simultaneously generates one or more random numbers which will be used to designate the symbols to be displayed upon completion of the spin. This RAM 56 may suitably take the form of a non-volatile RAM chip. A real time clock 58 may advantageously be used to assist the microprocessor 50 generate random numbers by tying the random number generation algorithm to the time of day. This real time clock 58 can also be helpful in generating game histories for storage in RAM 56 or transmission through network communications 60.

Fig. 3 depicts the note dispenser 110 removed from the gaming machine 10 of Fig. 1. The note dispenser 110 includes a frame 112 designed to be secured into the gaming machine 10. As shown in Figs. 4 and 5, the frame 112 contains a conveyor device 116 and a currency cassette 118.

As shown in Fig. 3 and in the view of Fig. 4, the conveyor device 116 includes the slot 120 from which currency can be dispensed. The slot 120 for dispensing currency is provided at the external end of a transport path 122

defined by a drive conveyer device 124 which generally comprises a lid assembly 126 and a transport surface 128. The lid assembly 126 and transport surface 128 may include one or more sensors 130, 132, such as infra red ray, magnetic or optical sensors for detecting passage and authenticating each bill or note to be dispensed. The conveyer device 116 preferably includes "double-bill" check and detection systems to assure that each bill or note is dispensed individually to prevent distribution of double bills. In the event that any one of the sensors 130, 132 detects movement of double clinging bills, the conveyer device 116 diverts the double bill to a storage area 168 in the note dispenser 110 by redirecting the travel path of the double clinging bills so that it is not dispensed from the gaming machine 10. The lid assembly 126 of the conveyer device 116 may also include one or more drive rollers 134 with associated drive mechanisms or motors (not shown).

The transport surface 128 may also include one or more mechanical feed-out lever sensors 140 to detect the position of the bill or note during transport. In addition, the transport surface 128 may include one or more mechanical lever sensors 142 which prevent dispensing of a subsequent note prior to removal of a preceding note.

The sensors 130, 132, lever sensors 140 and 142 and the drive mechanisms or motors are electronically controlled by an electronic controller 136 within the note dispenser 110. The electronic controller 136 provides control functions, communications with the game controller 16 and the bill validator 12 of the gaming machine 10.

As depicted in Fig. 4, the transport surface 128 may also include a diverter slot 150 which provides an opening to a path for allowing double clinging bills or other rejected note to be stored in the note dispenser 110.

Fig. 5 shows a perspective view of the currency cassette 118 extracted from the conveyer device 116. The currency cassette 118 includes a lid 160 rotatably attached to a frame 162 which includes a currency storage hopper 164 to reserve a plurality of coupons, currency, notes or bills 166. At the front portion of the currency cassette 118 is a rejected note storage area 168 positioned immediately below the diverted slot 150 of the transport surface 128 upon installation of the currency cassette 118 into the conveyer device 116.

Preferably, the currency cassette 118 includes a double lock assembly which comprises a first lock assembly 170 to secure the currency cassette 118 within the conveyer device 116, and a second lock assembly 172 to secure the lid 160 to the frame 162. The double lock assembly also requires two keys 174 and 176 respectively, to open the currency cassette 118 and allow access to the currency storage area 164.

The note dispenser 110 would be conventionally incorporated inside of an electronically controlled gaming machine 10, which may alternatively be a spinning reel slot machine, video poker game, etc. to allow for payback to the player in the form of paper currency. The note dispenser 110 allows for a higher degree of flexibility in player payback, resulting in fewer instances of manual filling of the coin hopper of the gaming machine 110.

The note dispenser 110 is designed to dispense notes or currency of a single denomination, which can be matched to the coin accepted by the gaming machine 10 for each play. Thus, for example, twenty-five cent machines may include a note dispenser 110 loaded to dispense \$10 or \$20 bills, while the \$1 and \$5 machines would have a note dispenser 110 loaded to dispense \$50 or \$100 bills.

As an example of how the note dispenser 110 would be incorporated into the payout operation of a gaming machine 10, following a "JACKPOT" play, the game controller 16 of the gaming machine 10 causes an accumulation of winnings to be displayed as credits. In the event that the player wishes to receive the accumulated winnings, as opposed to continuing play using the credits, the player presses the cash out button 26 on the button panel 20. The game controller 16 then instructs the coin hopper 19 to dispense a certain percentage of the winnings as coins dispensed to the payout tray 34, while the remainder of the winnings, in increments corresponding to the denomination of the notes held in the note dispenser 110, is dispensed by the note dispenser 110 as the correct number of bills through slot 120. During this operation, the conveyer device 116 sequentially removes bills from the currency cassette 118, verifies that only one bill has been removed by sensing characteristics of the bill via sensors 130 and 132, and sequentially dispenses the bills through slot 120.

Upon the dispensing of each bill, the note dispenser 110 confirms that the bill has been dispensed to the game controller 16 so that the displayed credits can be reduced accordingly. Alternatively, the game controller 16 of the gaming machine 10 can cause the coin hopper 19 and note dispenser 110 to operate simultaneously, or sequentially, to payout a jackpot automatically, instead of by displaying credits and a partial payout. In either case, the microprocessor 16 may also initiate operation of the light and sound generator 38, announcing the jackpot won by the player.

The note dispenser 110 can also be configured in gaming machines 10 such that "secure" paper such as coupons, scrip 166, having exchangeable monetary value within the casino, can be dispensed, for example upon

activation of the "cash out" button 26 as discussed above. Such secure paper 166 may be designed to be inserted into the currency acceptor or bill validator 12 of gaming machines 10, including other such gaming machines within a gaming establishment, to allow a player to obtain credits on various gaming machines without the transfer of genuine paper currency. The use of such secure paper 166 as the payout medium provides substantial economic advantages for the gaming establishment, due principally to the reduction in the amount of paper currency in circulation.

The above-mentioned implementations of the note dispenser 110 specific to the gaming industry can be either designed and manufactured as an integral component of gaming machines 10, as shown in Fig. 1, or designed as a retrofit component to be either internally or externally mounted to gaming machines already installed and operational in gaming establishments.

The foregoing detailed description is provided to allow those skilled in the art to appreciate the present invention. It is contemplated, however, that such persons will readily understand the application of the note dispenser detailed herein in various types of available gaming machines. Therefore, the invention and protection afforded by this disclosure will properly be understood to be limited and defined only by the scope of the appended claims.

CLAIMS

1. A gaming apparatus comprising:
 - a button panel including a display and a user interface area for allowing an operator to play a game of chance;
 - a bill validator incorporated into said apparatus for accepting and validating currency to credit the user with a corresponding number of play credits for the gaming apparatus; and
 - a note dispenser for dispensing currency as payout for successful play.
2. The gaming apparatus of Claim 1, wherein said note dispenser comprises:
 - a removable currency cassette; and
 - a conveyer device for transporting a note within said currency cassette to a dispensing slot.
3. The gaming apparatus of Claim 2, wherein said conveyer device further comprises sensors for validating the notes and for controlling dispersement of notes in a sequential fashion.
4. The gaming apparatus of Claim 2, wherein said conveyer device further comprises sensors for detecting multiple notes within the transport path and directing the transport of said multiple notes to a holding area within said note holder to preclude dispensing of said multiple notes.
5. An electronic gaming apparatus comprising:

a display for exhibiting a plurality of symbols arrayed in separate boxes;

a memory for storing at least one list of possible symbols to be exhibited on said display;

a game controller for selecting symbols from said memory for exhibition on said display and determining whether a final group of displayed symbols creates a winning or losing game;

a bill acceptor for receiving and validating currency and instructing said game controller to issue game play credits;

an initiate play switch for initiating game play by causing the game controller to select a set of symbols and exhibit those symbols arrayed in said separate boxes on said display;

a coin hopper controlled by said game controller for receiving and dispensing coins; and

a note dispenser controlled by said game controller for dispensing paper currency.

6. The gaming apparatus of Claim 5, wherein said note dispenser further comprises:

a removable currency cassette; and

a conveyer device for transporting a note within said currency cassette to a dispensing slot.

7. The gaming apparatus of Claim 6, wherein said conveyer device further comprises sensors for validating the notes and for controlling dispersement of notes in a sequential fashion.

8. The gaming apparatus of Claim 6, wherein said conveyer device further comprises sensors for detecting multiple notes within the transport path and directing the transport of said multiple notes to a holding area within said note holder to preclude dispensing of said multiple notes.

9. A gaming apparatus comprising:

a game controller secured within said gaming apparatus for controlling the operation of the gaming apparatus, said game controller including a microprocessor, a game operating instruction memory and a game data memory each operatively connected to said microprocessor;

coin input means operatively connected to said game controller for accepting coins from players;

a button panel operatively connected to said game controller for permitting players to operate the gaming apparatus;

a coin hopper operatively connected to said game controller and in communication with said coin input means for storing coins accepted from players and dispensing coins in response to signals from said game controller means;

a bill validator operatively connected to said game controller for accepting and validating bills, and communicating data representing the value of a bill accepted by said bill validator; and

a note dispenser operatively connected to said game controller for dispensing notes in response to signals from said controller.

10. A method of operating an electronic gaming apparatus comprising:

providing an electronic gaming apparatus which includes a display for exhibiting a plurality of symbols arrayed in separate boxes and a memory for storing at least one list of possible symbols to be exhibited on said display;

receiving and validating currency by a bill acceptor of said electronic gaming apparatus and instructing said game controller to issue game play credits;

operating an initiate play switch to initiate game play by causing the game controller to select a set of symbols and exhibit those symbols arrayed in said separate boxes on said display;

controlling the operation of said electronic gaming apparatus with a game controller which selects symbols from said memory for exhibition on said display and to determine whether a final group of displayed symbols creates a winning or losing game;

receiving coins in a coin hopper and dispensing coins under control from said coin hopper by said game controller of said electronic gaming apparatus; and

controlling a note dispenser by said game controller to dispense notes when said game controller determines that a final group of displayed symbols creates a winning game.

AMENDED CLAIMS

[received by the International Bureau on 13 April 1999 (13.04.99);
original claims 1-10 replaced by amended claims 1-10 (4 pages)]

1. A gaming apparatus comprising:

a button panel including a display and a user interface area for allowing an operator to play a game of chance;

a bill validator incorporated into said apparatus for accepting and validating currency to credit the user with a corresponding number of play credits for the gaming apparatus; and

a note dispenser for dispensing currency as payout for successful play, said note dispenser comprising a removable currency cassette; and a conveyer device for transporting a note within said currency cassette to a dispensing slot;

said conveyer device having a sensor for controlling distribution of notes.

2. The gaming apparatus of claim 1, further comprising: a game controller provided with a memory for storing at least one list of possible symbols to be exhibited on said display;

a note dispenser controlled by said game controller for dispensing paper currency in response to signals from said game controller;

whereby said game controller selects symbols from said memory for exhibition on said display and determines whether a final group of displayed symbols creates a winning or losing game;

said bill validator instructing said game controller to issue game play credits; and

3. The gaming apparatus of claim 1 or 2, wherein said conveyer device transports a note within said currency cassette to a dispensing slot.

4. The gaming apparatus of claim 1, wherein said sensor detects multiple notes within the transport path so that said conveyer device directs the transport of said multiple notes to a storage area within said currency cassette to preclude dispensing of said multiple notes.

5. The gaming apparatus of claim 3, wherein said display exhibits a plurality of symbols arrayed in separate boxes; and

said apparatus further comprises an initiate play switch for initiating game play by causing the game controller to select a set of symbols and exhibit those symbols arrayed in said separate boxes on said display.

6. The gaming apparatus of claim 2, wherein said bill validator is operatively connected to said game controller for accepting and validating bills, and communicating data representing the value of a bill accepted by said bill validator to said game controller.

7. The gaming apparatus of claim 2, wherein said game controller is secured within said gaming apparatus for controlling the operation of the gaming apparatus,

said game controller includes a microprocessor, a game operating instruction memory and a game data memory each operatively connected to said microprocessor;

said gaming apparatus further comprising: coin input means operatively connected to said game controller for accepting coins from players;

a coin hopper controlled by said game controller for receiving and

dispensing coins, and in communication with said coin input means for storing coins accepted from players and dispensing coins in response to signals from said game controller; and

said button panel being operatively connected to said game controller for permitting players to operate the gaming apparatus.

8. The gaming apparatus of claim 1, wherein said bill validator validates the notes by outputs from said sensor.

9. A method of operating an electronic gaming apparatus comprising:

providing an electronic gaming apparatus which includes a display for exhibiting a plurality of symbols arrayed in separate boxes and a memory for storing at least one list of possible symbols to be exhibited on said display;

receiving and validating currency by a bill validator incorporated into said gaming apparatus to instruct said game controller and issue game play credits to the user;

operating an initiate play switch to initiate game play by causing the game controller to select a set of symbols and exhibit those symbols arrayed in said separate boxes on said display;

controlling the operation of said electronic gaming apparatus with a game controller which selects symbols from said memory for exhibition on said display and to determine whether a final group of displayed symbols creates a winning or losing game;

receiving coins in a coin hopper and dispensing coins under control from said coin hopper by said game controller of said electronic gaming apparatus;

controlling a note dispenser by said game controller to transport a note

within a removable currency cassette toward a dispensing slot for distribution by a conveyer device when said game controller determines that a final group of displayed symbols creates a winning game; and

validating the notes and for controlling distribution of notes in response to outputs of a sensor provided in said conveyer device.

10. A method of operating an electronic gaming apparatus of claim 9, further comprising detecting multiple notes within the transport path by said sensor of said conveyer device to direct the transport of said multiple notes to a storage area within said currency cassette to preclude dispensing of said multiple notes.

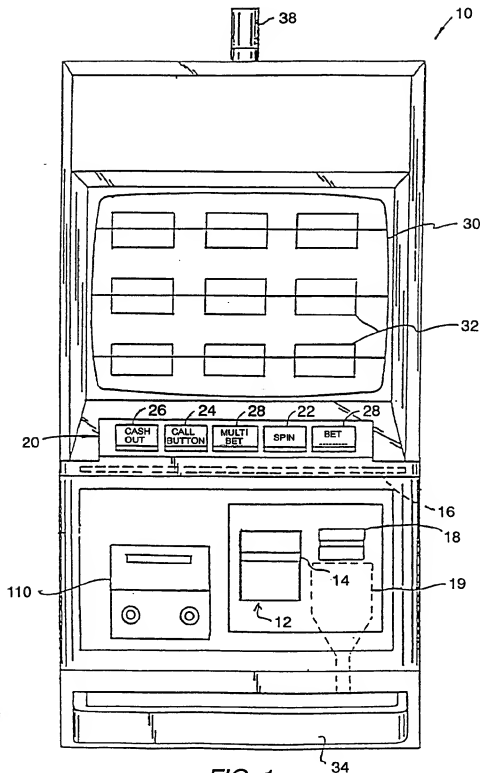


FIG. 1

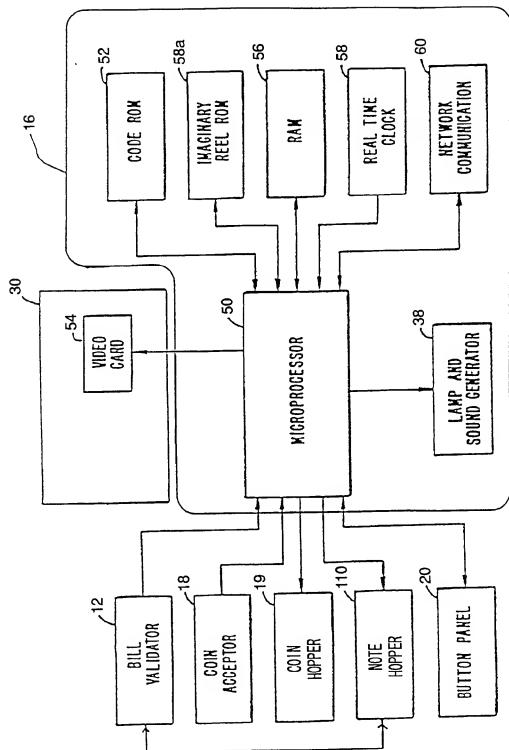
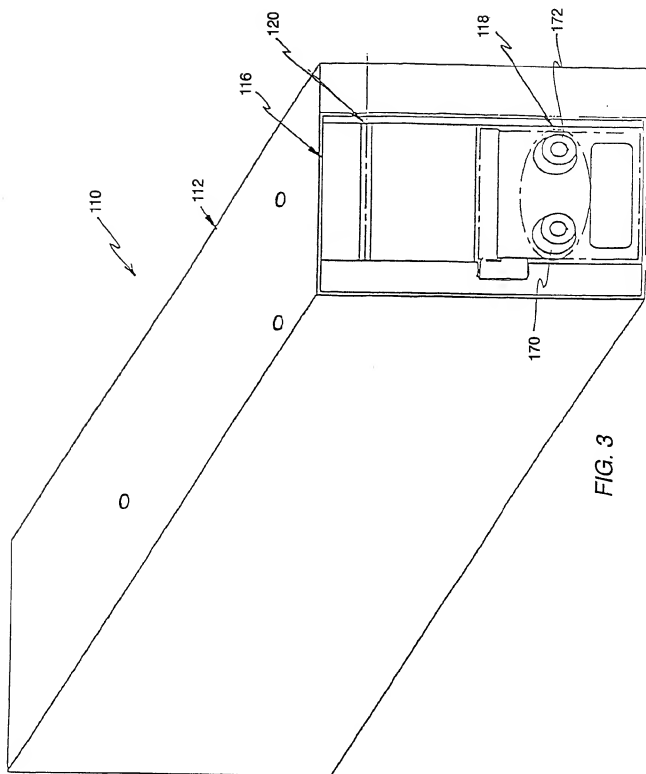


FIG. 2



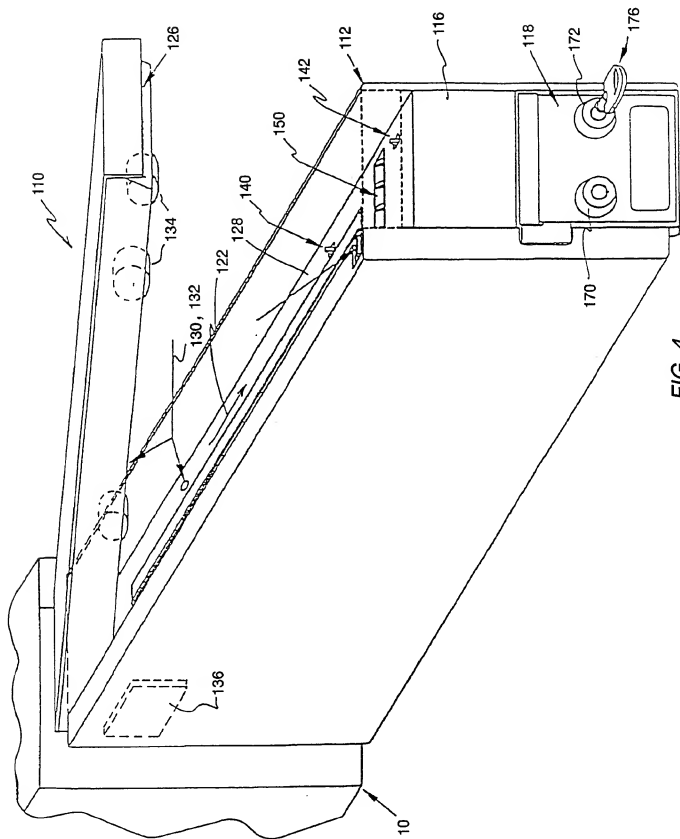
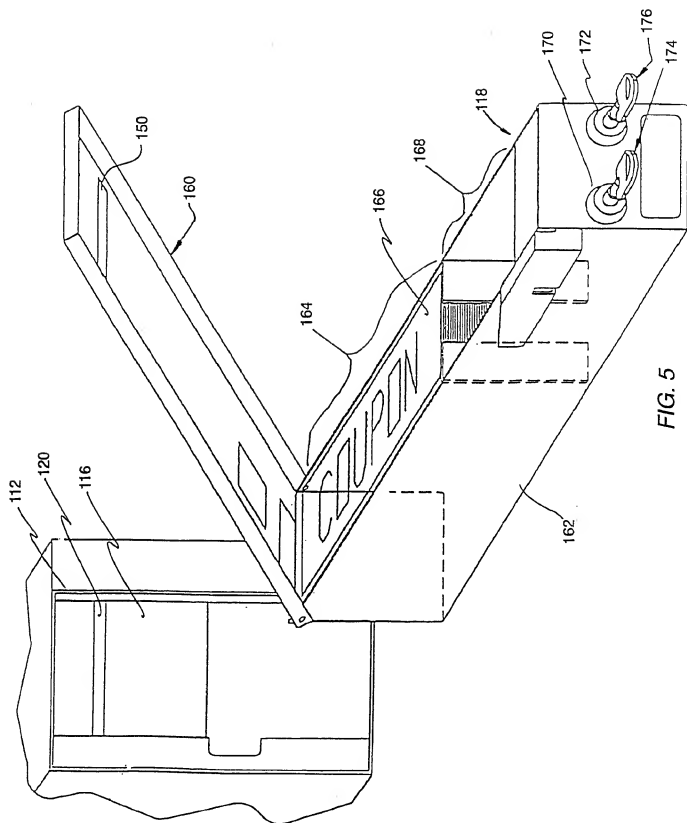


FIG. 4



INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/JP 98/04899

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G07F17/32 G07D9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G07F G07D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 195 26 160 A (NOVO-INVEST CASINO DEVELOPMENT) 25 January 1996	1,5,9,10
Y	see column 3, line 50 - column 4, line 25 see column 5, line 44 - column 6, line 9; figures	2,6
Y	---	---
Y	EP 0 784 299 A (INTERNATIONAL GAMING TECHNOLOGY) 16 July 1997	2,6
A	see column 6, line 18 - line 31; figures	1,5,9,10
X	---	---
X	DE 41 21 985 A (NSM AG) 30 July 1992	1,5,9,10
Y	see column 4, line 17 - column 5, line 15 see column 6, line 41 - line 46; figures	2,6
Y	---	---
A	US 5 271 613 A (HAIN) 21 December 1993	3,4,7,8
	see column 3, line 33 - line 49; figure 1	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

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"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

4 February 1999

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 98/04899

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